UNIVERSITY OF HAWAII LIBRARY

LIBRARY USE ONLY

EDITORS:

R. E. HUGHES M. J. SIENKO A. WOLD

Journal of Solid State Chemistry

VOLUME 2, 1970

ACADEMIC PRESS

New York and London

Copyright ©, 1970 by Academic Press, Inc.
ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, by retrieval system, or any other means, without written permission from the publishers.

CONTENTS OF VOLUME 2

Number 1, June 1970

P. D. Carfagna, W. E. Wallace, and R. S. Craig. Crystallographic and Magnetic Characteristics of the Y_2 $Ni_{17-x}Cu_x$ System 1

P. C. Donohue. High-Pressure Spinel Type Al_2S_3 and $MnAl_2S_4$ 6

Paul F. Weller and Barry E. Taylor. Impurity Effects in Sodium Tungsten Bronzes: Niobium and Tantalum Doping 9

W. G. Mumme and J. A. Watts. The Crystal Structure of the Molybdenum Bronze Cs_xMoO_3 ($x \approx 0.25$) 16

G. M. Wolten and A. B. Chase. Studies in Tantalum Oxide Crystal Growth 24

G. Blasse. New Compounds with Eulytine Structure: Crystal Chemistry and Luminescence 27

J. Schoonman. The Conductivity of Lead Bromide in a Bromine Atmosphere 31

Lars-Johan Norrby and Hugo F. Franzen. Refinement of the Crystal Structure of Nonstoichiometric $Ti_{2+x}S_4$ 36

Guy Perez, Monique Darriet-Duale, et Paul Hagenmuller. Les Systèmes Ternaires MS_2–CdS–Ln_2S_3 à 1050°C (M=Si, Ge) (Ln=La...Gd) 42

B. L. Chamberland, A. W. Sleight, and W. H. Cloud. The Preparation and Properties of Rutile-Type Transition Metal Oxyfluorides 49

L. H. Brixner and J. F. Weiher. Preparation and Properties of Some Strontium-Oxometallates 55

C. Dean Parks and William G. Bos. Magnetic Properties and Electronic Structure of Yttrium Hydrides 61

Kenneth L. Keester and William B. White. Crystal Chemistry and Properties of Phases in the System SrO-PbO-O 68

J. M. Honig, W. E. Wahnsiedler, M. D. Banus, and T. B. Reed. Resistivity, Magnetoresistance, and Hall Effect Studies in VO_x($0.82 \leq x \leq 1.0$) 74

J. G. Allpress. Mixed Oxides of Titanium and Niobium: Defects in Quenched Samples 78

H. G. Drickamer, V. C. Bastron, D. C. Fisher, and D. C. Grenoble. The High-Pressure Chemistry of Iron 94

G. Blasse and A. Bril. Fluorescence and Structure of Barium Zirconium Trisilicate 105

James M. Berak and M. J. Sienko. Effect of Oxygen-Deficiency on Electrical Transport Properties of Tungsten Trioxide Crystals 109

R. D. Shannon and C. T. Prewitt. Synthesis and Structure of a New High-Pressure Form of Rh_2O_3 134

Number 2, August 1970

Lawrence Suchow, Milan Kokta, and Vincent J. Flynn. New Garnet Compounds with Trivalent Rare-Earth Ions on Both Dodecahedral and Octahedral Sites 137

C. E. Messer. Hydrides versus Fluorides: Structural Comparisons 144

LAWRENCE SUCHOW AND ALFRED A. ANDO. Magnetic Properties of Transition Metal–Rare-Earth Chalcogenide Spinels 156

D. A. GRISAFE AND F. A. HUMMEL. Pentavalent Ion Substitutions in the Apatite Structure Part A. Crystal Chemistry 160

D. A. GRISAFE AND F. A. HUMMEL. Pentavalent Ion Substitutions in the Apatite Structure Part B. Color 167

F. P. KOFFYBERG. Electronic Conduction and Defect Equilibria in CdO Single Crystals 176

H. KREBS AND H. WELTE. Atomic Distribution in the Glass Forming System Ge–As–Se 182

R. DE JONGE, T. J. A. POPMA, G. A. WIEGERS, AND F. JELLINEK. Structure and Phase Transitions of Molybdenum(III) Sulfide and Some Related Phases 188

I. SHIDLOVSKY AND W. E. WALLACE. Magnetic and Crystallographic Characteristics of the Ternary Intermetallic Compounds Containing Lanthanides and Iron or Cobalt 193

R. D. SHANNON AND C. T. PREWITT. Synthesis of Pyrosilicates and Pyrogermanates Having the Thortveitite Structure 199

A. F. REID AND T. M. SABINE. $AlVO_3$, a Metal-Deficient Spinel 203

VANCLIFF JOHNSON AND AARON WOLD. Crystal Growth and Magnetic Properties of Compositions in the CoS_2:$CoSe_2$ System 209

R. J. BOBKA AND L. S. SINGER. Magnetic Susceptibility and Electron Spin Resonance of Ultrafine Graphite 218

LINUS PAULING, IAN KEAVENY, AND ARTHUR B. ROBINSON. The Crystal Structure of α-Fluorine 225

ROBERT C. BYRNE AND CARL W. MOELLER. Magnetic Interactions of Ruthenium, Rhodium, and Iridium in the Hexagonal Barium Titanate Structure 228

MICHEL DUCLOT, JEAN VICAT, AND CHARLES DEPORTES. Mise en Evidence et Etude de la Phase Ordonnée $Y_2Hf_7O_{17}$ dans le système HfO_2–Y_2O_3 236

ERNEST M. LEVIN AND ROBERT S. ROTH. The System Niobium Pentoxide–Phosphorus Pentoxide 250

RÉGNAULT VON DER MÜHLL, DENIS DUMORA, JEAN RAVEZ, AND PAUL HAGENMULLER. Deux Nouvelles Structures Difluorine et Trifluorine 262

ALAIN TRESSAUD, JOSIK PORTIER, ROBERT DE PAPE, AND PAUL HAGENMULLER. Les Systèmes MF–FeF_3 (M = Li, Na, K, Rb, Cs, Tl, NH_4) 269

P. V. KLEVTSOV AND R. F. KLEVTSOVA. Single-Crystal Synthesis and Investigation of the Double Tungstates $NaR^{3+}(WO_4)_2$, where R^{3+} = Fe, Sc, Ga, and In 278

S. P. TANDON AND J. P. GUPTA. Diffuse Reflectance Spectrum of Nickel Monoxide 283

DAVID BELLAVANCE, JAMES MIKKELSEN, AND AARON WOLD. Preparation and Properties of Fe_2P 288

G. BLASSE AND A. BRIL. Luminescence of Tungsten-Activated Tellurates 293

E. J. FELTEN, D. E. FORNWALT, AND A. V. KARG. The Preparation and Properties of the Rutile Phase $VTaO_4$ 297

M. B. VELLINGA, R. DE JONGE, AND C. HAAS. Semiconductor to Metal Transition in $MoTe_2$ 299

C. F. VAN BRUGGEN, M. B. VELLINGA, AND C. HAAS. Semiconducting and Magnetic Properties of Rhombohedral Cr_2S_3 301

T. J. M. SMIT, E. VENEMA, J. WIERSMA, AND G. A. WIEGERS. Phase Transitions in Silver Gold Chalcogenides 306

ERRATUM 311

Number 3, November 1970

C. N. R. Rao, W. E. Wahnsiedler, and J. M. Honig. Plasma Resonance in TiO, VO and NbO 315

G. J. Hyland. Semiconductor ⇄ Metal Phase Transitions 318

Jean Etourneau, Jean-Pierre Mercurio, Roger Naslain, and Paul Hagenmuller. Structure Electronique de Quelques Hexaborures de Type CaB_6 332

J. C. Joubert, A. Collomb, D. Elmaleh, G. Le Flem, A. Daoudi, and G. Ollivier. Sur quelques nouveaux oxydes mixtes de strontium et d'éléments de transition du type K_2NiF_4 343

E. Segal and W. E. Wallace. Rare-Earth Ions in a Hexagonal Field. I 347

J. G. Allpress and R. S. Roth. Structural Studies by Electron Microscopy: Polymorphism of ZrO_2 $12Nb_2O_5$ 366

G. V. Subba Rao, S. Ramdas, P. N. Mehrotra, and C. N. R. Rao. Electrical Transport in Rare-Earth Oxides 377

Robert A. Huggins and Maurice L. Huggins. Structural Defect Equilibria in Vitreous Silica and Dilute Silicates 385

Patrick Dougier and Andre Casalot. Sur Quelques Nouvelles Séries de Composés Oxygénés du Vanadium et des Lanthanides de Structure Perovskite 396

Heribert Wiedemeier and A. Gary Sigai. Phase Equilibria in the Solid Region of the System Manganese Selenide–Cadmium Selenide 404

B. M. Gatehouse and D. J. Lloyd. The Crystal Structure of Potassium Metazirconate, K_2ZrO_3, and Its Tin Analogue, K_2SnO_3 410

R. J. Arnott and J. M. Longo. The Crystal Structure of Hexagonal $RbNiF_3$(6H) 416

G. Constant, J. C. Daran, and Y. Jeannin. Coordination Compound Formed by Iron Trichloride Dissolved in Liquid Hydrogen Cyanide 421

F. M. Spiridonov, L. N. Popova, and R. Ya. Popil'skii. On the Phase Relations and the Electrical Conductivity in the System ZrO_2–Sc_2O_3 430

P. Petrino, F. Moya, and F. Cabané-Brouty. Relations Absorption-Diffusion dans le Systeme Soufre—Cuivre 439

R. S. Roth, J. L. Waring, and H. S. Parker. Effect of Oxide Additions on the Polymorphism of Tantalum Pentoxide. IV. The System Ta_2O_5–Ta_2WO_8 445

H. Nowotny, H. Boller, and O. Beckmann. Alloy Phases Crystallizing with Structures Which Occur with Non-metallic Compounds 462

J. S. Anderson and R. J. D. Tilley. Crystallographic Shear in Oxygen-Defficient Rutile: An Electron Microscope Study 472

Number 4, December 1970

G. H. Hershman and F. A. Kröger. High-Temperature Hall Effect Measurements on CdS in Cd Vapor 483

P. G. Fox. The Explosive Sensitivity of the Metal Azides to Impact 491

R. L. Stein and R. A. Butera. The Heat Capacity and Magnetization of Praseodymium Metal in the Temperature Region 1.2–4.2°K with Applied Magnetic Fields up to 40,000 G 503

B. L. Chamberland. A Study on the $NiVO_3$ System 521

A. Nouailhat and P. Pinard. Cathodoluminescence of KCl Single Crystals at Room Temperature .. 525

G. V. Chandrashekhar, J. Moyo, and J. M. Honig. Electrical Resistivity of NbO 528

Jean Galy, Danièle Lavaud, André Casalot, and Paul Hagenmuller. Les Bronzes Oxygénés de Vanadium de Formule $Cu_xV_2O_5$: I. Structure Cristalline des Phases $Cu_xV_2O_5\beta$ et $Cu_xV_2O_5\epsilon$ .. 531

André Casalot, Danièle Lavaud, Jean Galy, and Paul Hagenmuller. Les Bronzes Oxygénés de Vanadium de Formule $Cu_xV_2O_5$. II. Mécanisme de Conduction et Degré D'Oxydation du Cuivre 544

L. Ben-Dor, A. Glasner, and S. Zolotov. Reaction of Mercury Ions in Potassium Halide Lattices 549

I. J. McColm, R. Steadman, and A. Howe. Preparation, Structure, and Mössbauer Spectra of Tin Tungsten Bronzes 555

Toshihide Tsuji, Kazuo Fueki, Takashi Mukaibo, Teruto Ohta, and Tadashi Watanabe. Self-Diffusion and Interdiffusion in the AgBr–NaBr System 563

Christian Cros, Michel Pouchard, and Paul Hagenmuller. Sur une Nouvelle Famille de Clathrates Minéraux Isotopes des Hydrates de Gaz et de Liquides. Interprétation des Résultats Obtenus ... 570

D. Babel. Note On The Crystal Structure of $RbNiF_3$ 582

R. G. Bedford and E. Catalano. Studies of the Europium–Oxygen–Fluorine and Samarium–Oxygen–Fluorine Systems 585

Rhéal P. Turcotte, John M. Haschke, Michael S. Jenkins, and Leroy Eyring. A Structural and Thermogravimetric Investigation of the Rare-Earth Formates 593

Sven Andersson and Torsten Lundström. The Solubility of Chromium in β-Rhombohedral Boron as Determined in $CrB_{\sim 41}$ by Single-Crystal Diffractometry 603

R. B. Von Dreele, P. W. Bless, E. Kostiner, and R. E. Hughes. The Crystal Structure of Magnesium Germanate: A Reformulation of Mg_4GeO_6 as $Mg_{28}Ge_{10}O_{48}$ 612

Author Index 619

Subject Index 621